



## AGRICULTURE'S CONTRIBUTIONS TO HAWAII'S ECONOMY, 2005

This sequel to two previous CTAHR publications, EI-2 (2000) and EI-3 (2002), provides an update to the estimates of agriculture's contribution to Hawaii's economy. As mentioned in the earlier publications, estimates of agriculture's contributions vary depending on what is defined as "agriculture" and on the methodology used to develop those estimates. Agriculture as defined in this current publication uses the latest industry classification based on the North American Industry Classification System (NAICS) including crop and animal production; forestry, fishing and related activities; and food (including beverage and tobacco) product manufacturing.

The most comprehensive measure of the contribution of an industry is the value added or industry's gross domestic product<sup>1</sup> (GDP) as it avoids possible double-counting. The inclusion of other economic yardsticks such as employment, labor income and sales value provides a fuller picture of the performance of an industry.

Industry sales value is probably the most common measure of economic activities. For example, the Hawaii Department of Agriculture reports routinely the farmgate values of production agriculture. Despite its double counting problem, sales value measures the size of economic transactions of an industry based on which general excise and use taxes are generally levied.

Employment (number of full- and part-time wage-and-salary plus proprietors' jobs) provides another good indicator for measuring the contribution of an industry to the economy. Labor income (earnings), which primarily consists of the income received by persons from participation in production, provides yet another measure of an industry's contribution to the economy.

Against this background, the purpose of this publication is to summarize and compare the four measures described above – value-added or GDP, employment, labor income and sales value – in assessing the contribution of agriculture to Hawaii's economy for the years 1997, 2002 and 2005.

### **Agriculture's contribution to GDP**

Hawaii's overall economy as measured by total GDP increased at an annual rate of 3.0% from 1997 to 2002 but has since grown quite rapidly at an annual rate of 8.0%. Agriculture GDP on the other hand reveals an opposite trend, growing at an annual rate of 2.8% from \$594 million in 1997 to \$682 million in 2002 but since then decreasing at an annual rate of 0.9% to \$664 million in 2005. While farm production was relatively stable

throughout the period 1997-2005, food product manufacturing steadily increased and forestry, fishing and related activities decreased quite rapidly. For the entire period, agriculture increased slightly at an average annual rate of 1.4%, while the overall economy grew at the faster rate of 4.8% per year. Hawaii seems to be following the national trend where agriculture's growth falls behind the overall growth of the economy.

### **Agriculture's contribution to employment**

Total employment in the State increased at an annual rate of 1.6% from 740,028 jobs in 1997 to 838,740 jobs in 2005. However, total employment in agriculture decreased at an annual rate of 1.3% from 25,809 jobs in 1997 to 23,200 jobs in 2005. The decrease can be attributed primarily to decreases in the forestry, fishing and related activities sector, and to a lesser extent the food product manufacturing sector.

### **Agriculture's contribution to labor income**

The trends of labor income for the economy, farm production, forestry, fishing and related activities, and food product manufacturing closely follow the corresponding employment trends. The share of agriculture labor income to total labor income declined from 2.1% in 1997 to 1.5% in 2005. Thus, the share of labor income for agriculture would tend to be lower than its employment share, reflecting the lower income of agricultural jobs.

### **Agriculture sales**

Total agriculture sales (including farm production, forestry, fishing and related activities, and food product manufacturing) increased from \$1,643 million in 1997 to \$1,836 million in 2002 and further increased slightly to \$1,900 in 2005. The share of agriculture sales as compared to the total Hawaii sales decreased slightly from 2.8% in 1997 to 2.6% in 2002 and further decreased in 2005 to 2.1%. This is similar to the GDP trend, since agricultural sales have been increasing at a slower rate than total sales of the economy.

To summarize, in 2005, agriculture contributed to 2.1% of total Hawaii sales, 1.2% of GDP, 2.8% of employment, and 1.5% of labor income. The complete publication, including an analysis on the total economic contributions with distribution margins is available at

<http://www.ctahr.hawaii.edu/oc/freepubs/pdf/EI-13.pdf>

<sup>1</sup> GDP by industry for each state replaces the former GSP (Gross State Product) by industry reported by the U.S. Bureau of Economic Analysis.

Source: PingSun Leung, UH-CTAHR Department of Molecular Biosciences & Bioengineering, and Matthew K. Loke, Hawaii Department of Agriculture, Agricultural Development Division.